

## Quantum Radio and Communication Processes Patent Application

1. This Patent application applies to numerous scientific fields and pertains to anything utilizing the transfer of information via quantum communication.
2. The patent application is two-fold in nature as it describes both the basic physical components of the Quantum Radio and Communications processes in addition to detailing the specifics of component interaction.
3. Some components of the system exist although not in the integrated manner and configurations that I seek to patent. The Quantum Radio and Communication Systems allow for unprecedented *real-time* communication over vast distances.
4. The purpose of the Quantum Radio and Communication Systems is to provide state-of-the-art communication technology for the replacement of every existing radio, computing, and communication system (for any application) currently in use today.
5. *Components and Process:*

### Particle Entanglement and Communication

After determining the Communication Frequency/Wavelength between the Entangled Particles, this allows for the creation of a Carrier Signal between them through the manipulation of each particular entangled particle, encoding it, and the interpretation of the variance and alteration between the entangled particles (*Alice or Bob or another Subset*). Each Entangled particle has a *Spin Value (SV)* that corresponds to its entangled counterpart. It is the alteration/encoding and interpretation of these Particle Spin Values (SV) that allows for the processing of information by the creating a carrier frequency/wavelength between them.

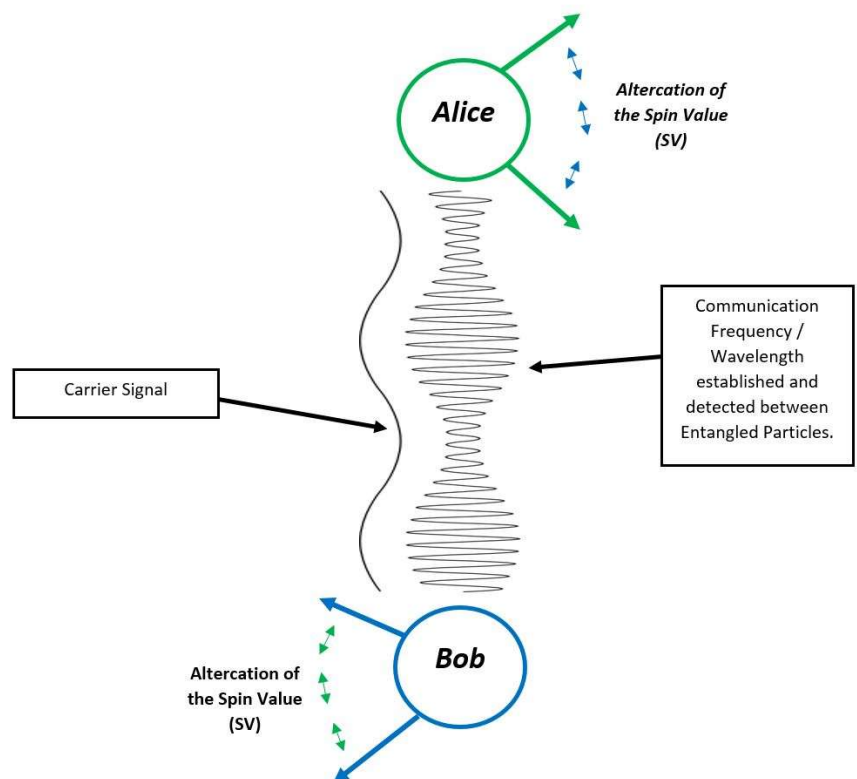



Figure 1: Communication of Information between Entangled Particles.

There are various methods for this encoding and different techniques to tune or alter the Spin Values (SV) after entanglement has occurred. In *Figures 2-5* you will see that entangled particles are not limited to strictly “Up or Down” Spin Values. In fact, they are not limited to “Thirds: 1/3 etc.” which are commonly used to describe 1<sup>st</sup>, 2<sup>nd</sup>, or 3<sup>rd</sup> generation particle or particles used within particle accelerators. Every existing particle is capable of possessing a Spin Value (SV) that is *at least* of 3 dimensions in value (figure 4). The Spin Values (SV) of these particles can be altered in both their natural and entangled states.

Another method/consideration of manipulating/encoding Spin Values (SV) can be found in the *Unification Publication* pages 8 and 9 which describes wave amplitude and the effect it has on determining the Spin Value (SV) of particles. These pages can be viewed in their entirety within the publication which can be downloaded at [www.basrc.biz](http://www.basrc.biz)

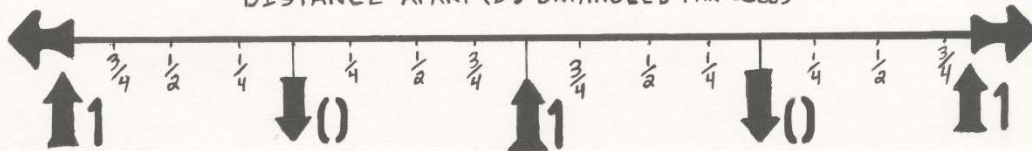
BINARY EXPLANATION  
REGARDING DISTANCE  
OF ENTANGLED  
PARTICLES AND THEIR  
CORRESPONDING  
SPIN VALUES  
(SV) 

$$F = G \frac{\overset{(SV)}{\uparrow} M1 \overset{(SV)}{\downarrow} M2}{D^2}$$

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BINARY

DISTANCE APART ( $D^2$ ) ENTANGLED PARTICLES



PROBABILITY WAVE AMPLITUDE  
THEORY. I POSTULATE THAT  
THE CONVERGING POINTS  
ALTERNATE PARTICLE  
SPIN.

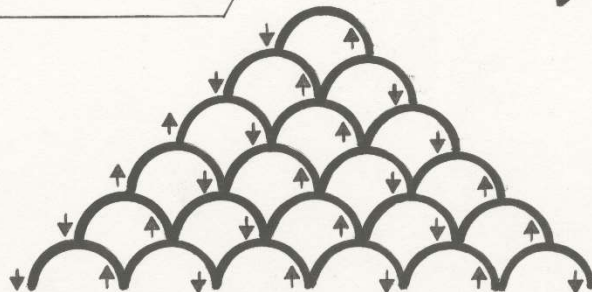
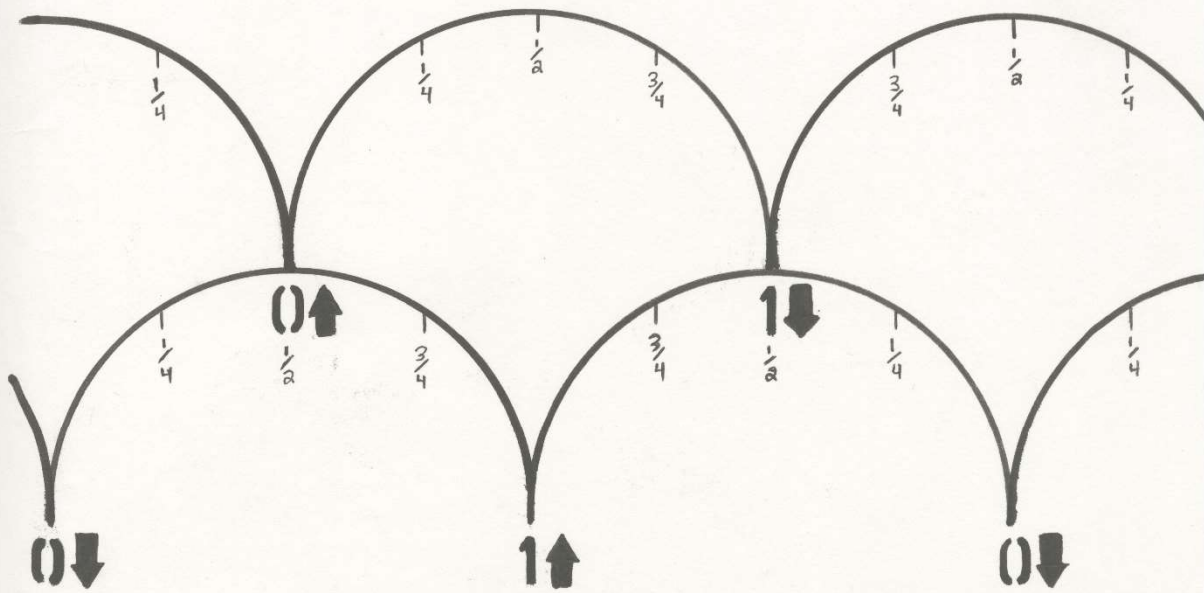
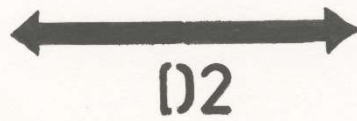
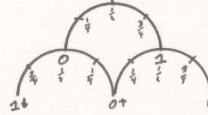


Figure 2: Wave Amplitude and the effect of Particle Spin Value (SV)

ENTANGLED PARTICLE SPIN VALUE (SV)  
DETERMINED BY WAVE AMPLITUDE  $\emptyset$

BINARY SYSTEM  
WAVE CONVERGING POINTS



$$F = G \frac{\overset{(sv)}{\uparrow} M1 \overset{(sv)}{\downarrow} M2}{02}$$

Figure 3: Entangled Particle Spin Value (SV) determined by Wave Amplitude

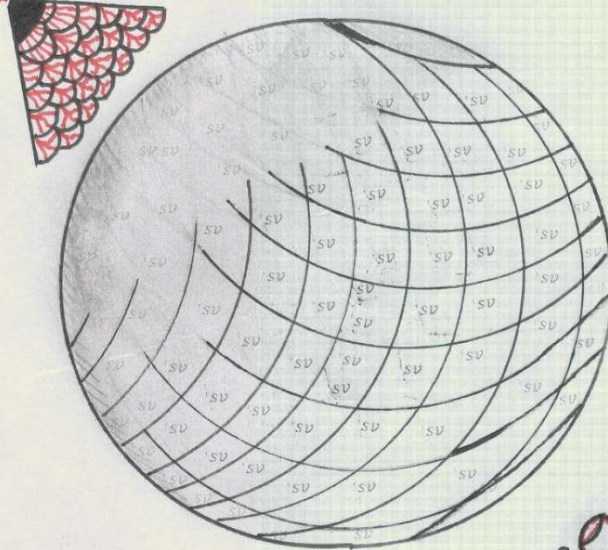


## ENTANGLED PARTICLE ENCODING AND SPIN VALUE (SV)

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INFORMATION  
ENCODING  
DEVICE

ENTANGLED PARTICLES ARE NOT LIMITED TO STRICTLY "UP OR DOWN" SPIN VALUES (SV). IN FACT, THEY ARE NOT LIMITED TO "THIRDS,  $\frac{1}{3}$ ,  $\frac{2}{3}$ ,  $\frac{3}{3}$ " ETC. WHICH ARE COMMONLY USED WITHIN TO DESCRIBE 1ST, 2ND, OR 3RD GENERATION PARTICLES USED WITHIN PARTICLE ACCELERATORS AND OTHER EXPERIMENTS. AS YOU CAN SEE BELOW, I POSTULATE THAT EVERY PARTICLE (ENTANGLED OR OTHERWISE) IS CAPABLE OF POSSESSING A SPIN VALUE (SV) THAT IS OF AT LEAST OF 3 DIMENSIONS IN VALUE.



SV  
SPIN VALUE

THE SPIN VALUE (SV) OF THESE PARTICLES CAN BE ALTERED IN THEIR NATURAL AND ENTANGLED STATES. THERE ARE VARIOUS METHODS FOR ENCODING (PAGES 8,9 OF THE ORIGINAL UNIFICATION PUBLICATION) AND VARIOUS METHODS FOR THE "TUNING" OF PARTICLES. ALL OF THESE METHODS CAN BE CONDUCTED DURING THE ENTANGLEMENT PROCESS OR THEY CAN BE "ADJUSTED" OR "TUNED" AFTER THE ENTANGLEMENT PROCESS. THIS ALLOWS FOR THE TRANSMISSION OF INFORMATION AT IT'S IDEAL WAVELENGTH/AMPLITUDE.

Figure 4: Entangled Particle Spin Value (SV) and 3D Encoding

ALTERING SPIN VALUES (SV) OF ENTANGLED PARTICLES  
FOR INFORMATION ENCODING AND TRANSMISSION

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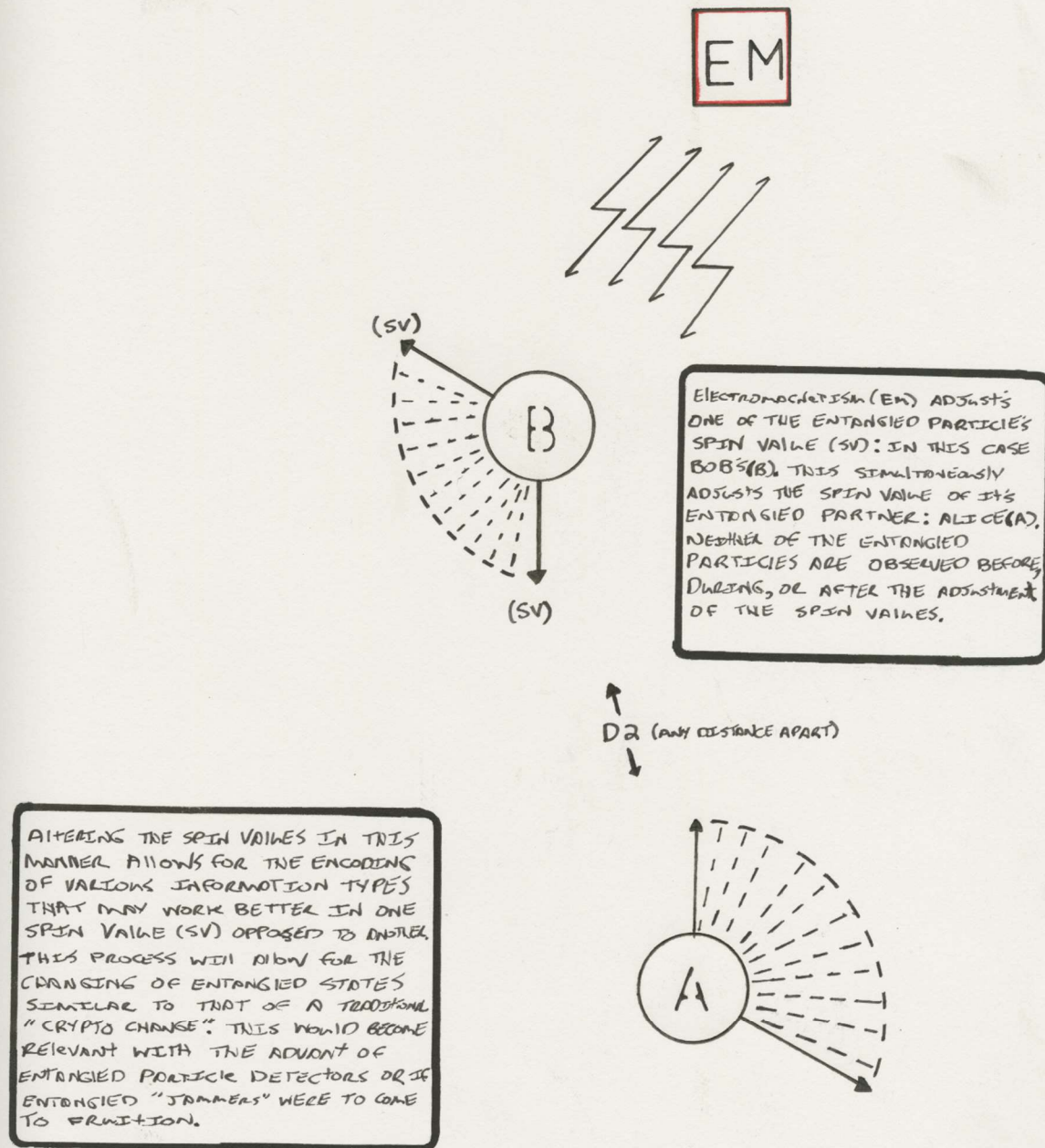


Figure 5: Original Encoding diagram taken from the Unification Publication describing one type/possibility of 3D Spin Values (SV) encoding and other applications.

## Tuning

The tuning of an entangled particle set (Alice and Bob) can be done during the entanglement process. It can also be conducted after entanglement has occurred by adjusting one of the entangled particles (Alice or Bob) which will result in the simultaneous tuning of it's entangled counterpart. This is accomplished by altering the Spin Value (SV) of one of the entangled particles (Figures 1-8). This is useful when transmitting different types of information over devices designed for Quantum Communications (in the case of this Patent – a Quantum Radio). For a visual representation of where tuning fits in the Radio/Communication process see: *Figure 6 Quantum Radio Components and Process*

## Entangled Particle Power Transmission for Radio and Communications Operation

The Quantum Radio will possess two methods of power which will be required to operate the radio in it's daily function. Both methods utilize a Capacitor built within the radio.

The first method uses an internal power source derived from a battery which requires maintenance and periodic replacement. The type and size of the battery will be determined by the type and size of the radio and the type and amount of information that it was designed to transmit and receive.

The second method allows for the radio to receive power via transmission. After the power has been received by the radio, it is stored internally within the radio's capacitor to be used for the daily functioning of it's components when required. A radio designed with this method of receiving power has a separate power receive function apart from it's ability to transmit and receive all other types of information. This method of the radio receiving power is similar to the information transfer processes, however it is specifically “tuned” and created for this purpose. For process location and further description see: *Option B, Figure 6: Quantum Radio Components and Process Radio “A”*.

Despite the method utilized to power the radio, the powering of various components within it is done via the power contained within the radio's capacitor. The capacitor provides the necessary power to operate radio components such as the Encoder(s)/Decoder(s), the components required for conversion and presentation of the data received and transmitted in it's original form (i.e. Analog, Digital, Data, other etc.), and for the process, function, and ancillary radio components. The complexity and specific purpose of the radio will determine the components that require power for their operation. For process locations and further description see: *Figure 6 Quantum Radio Components and Process Radio “A”*.

### Conversion of Original Content

Analog, Digital, Data, Other Information etc. This is not limited to any type of information (including energy). Anything that can be encoded can be transmitted via particle entanglement.

### Information Encoder/Decoder

The purpose of the Encoder/Decoder is to prepare and/or decipher the Information Packets that are to be transmitted, and those that are received within the radio or communication system.



## Radio A Components and Process (with Alice Entangled Particles)

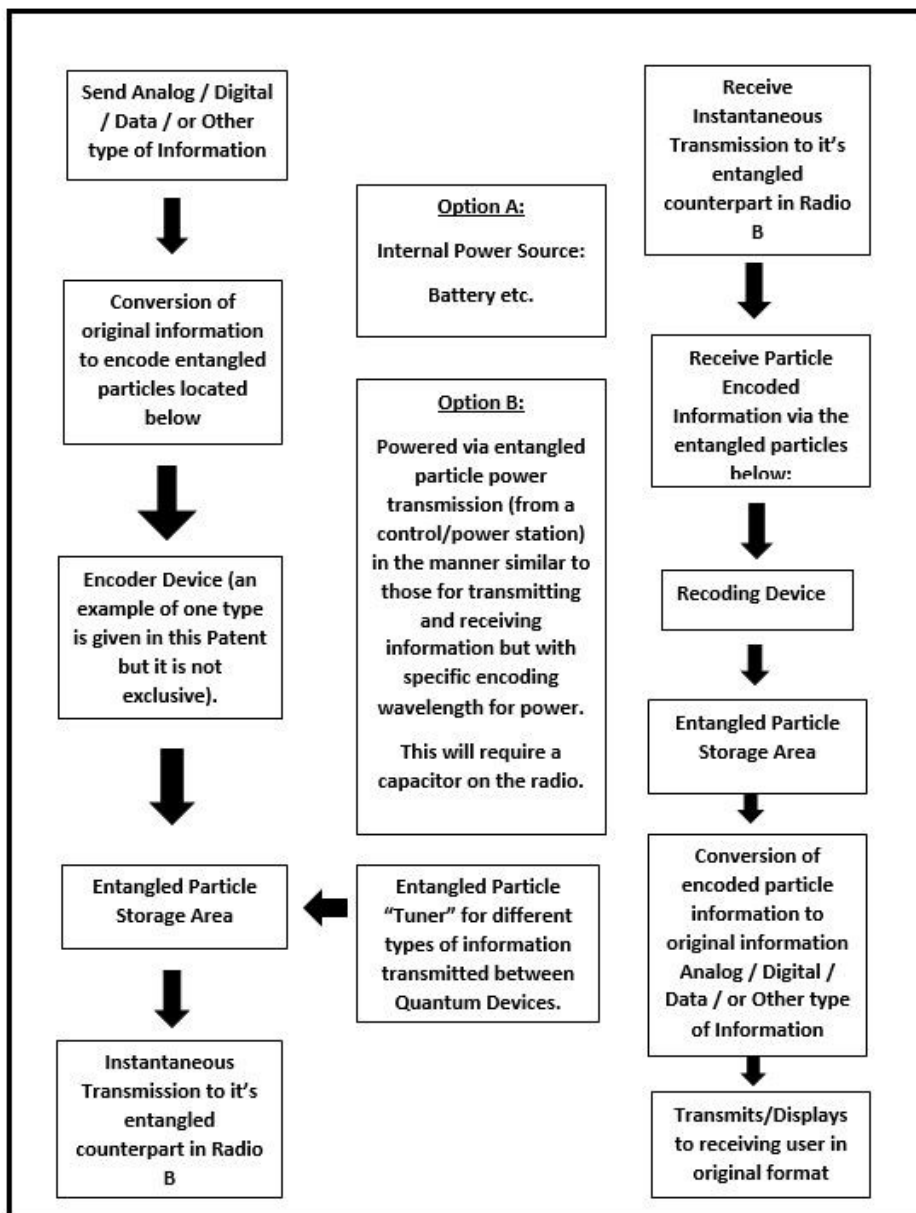


Figure 6: Quantum Radio Components and Process Radio "A"

## Radio B Components and Process

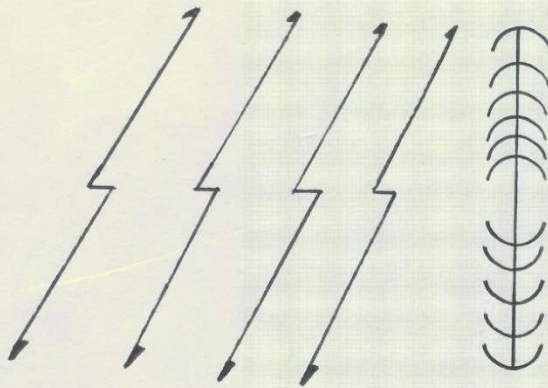
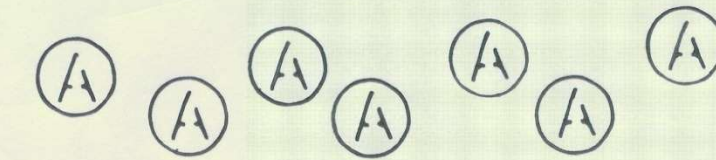
(Bob entangled particles)

Radio B will contain the exact same components as radio A displayed above. The only difference between this basic radio set example is that each contain one of their entangled particle counter-parts to transmit and receive information between them. In the example described in both of these radios' (A and B) they are utilizing one subset of entangled particles: In this case, Alice and Bob.

## Mass Particle Entanglement and Complex Quantum Radio, Computing, and Communication Systems.

For mass particle entanglement and more complex radio and communication systems see the figures 1-8 located throughout the document. This demonstrates the use of entangled particle subsets for the transmission of various types of information and energy simultaneously within a radio set or complex radio and communication systems.

The Quantum Processes and Science within this patent will be utilized within complex devices such as Quantum Processors for use in Quantum Computers and for Quantum Computing, Mobile Telephones, and Communication Systems such as the Internet. This will also allow for Quantum Encryption to be utilized within these devices.



THE MASS ENTANGLEMENT OF PARTICLES IS PARTICULARLY USEFUL WHEN TRANSMITTING LARGE AMOUNTS OF INFORMATION AND WHEN TRANSMITTING AND RECEIVING INFORMATION OVER NUMEROUS DEVICES SUCH AS A RADIO NETWORK OR OTHER COMPLEX NETWORKS CONSISTING OF TWO OR MORE DEVICES. THESE MASS ENTANGLED PARTICLES CAN BE DISTRIBUTED AMONGST THE NETWORK TO FACILITATE EN MASS TRANSMISSION AND RECEIVING OF INFORMATION OR SPECIFIC TRANSMISSION BY ISOLATING PARTICLES ALICE'S OR BOB'S

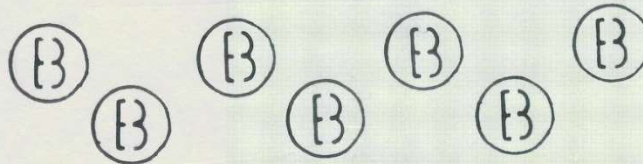


Figure 5: Mass Particle Entanglement for Communications



THE COMPLEXITY OF A QUANTUM COMMUNICATION SYSTEM MAY NECESSITATE THE REQUIREMENT MORE/NUMEROUS DIFFERENT TYPES OF ENTANGLED PARTICLES THAT SERVE SPECIFIC PURPOSES. FOR EXAMPLE, A RADIO NETWORK REQUIRES MASS ENTANGLEMENT OF "ALICE" AND "BOB" PARTICLES TO TRANSMIT AND RECEIVE ANALOG INFORMATION. THE SAME NETWORK REQUIRES A POWER TRANSMISSION CAPABILITY, AND IN THIS EXAMPLE REQUIRES THE ABILITY TRANSMIT AND RECEIVE DIGITAL INFORMATION. IN ORDER TO AVOID COMBINING ENTANGLEMENT AND INFORMATION PASSAGE AND FOR DEVICE DESIGN, EACH SUBSET OF ENTANGLEMENT CAN BE ASSIGNED A PARTICULAR PURPOSE. IN THIS EXAMPLE, THE QUANTUM COMMUNICATION SYSTEM REQUIRES:

ALICE + BOB = ANALOG TRANSMISSION AND RECEIVING  
CANDY + DONNIE = DIGITAL TRANSMISSION AND RECEIVING  
EINSTEIN + FEYNMAN = POWER TRANSMISSION AND RECEIVING

I PROPOSE THE ALPHABET BELOW TO PROVIDE THE INITIAL 13 PAIRS OF ENTANGLED PARTICLES TO BE UTILIZED IN DEVICE/SYSTEM DESIGN AND ENDS OF PROCESS COMPREHENSION. SUBSEQUENT ENTANGLED PARTICLES (FOR COMPLEX SYSTEMS) CAN UTILIZE AN ALPHANUMERIC SEQUENCE. FOR EXAMPLE: ALICE 01 + BOB 01, AND SO ON.

**A** ALICE

**B** BOB

**C** CANDY

**D** DONNIE

**E** EINSTEIN

**F** FEYNMAN

**G** GAIILEO

**H** HEIN RICH

**I** ISAAC

**J** JACK

**K** KATHRYN

**L** LISA

**M** MAX

**N** NEWTON

**O** OBI

**P** PAULI

**Q** QUEUE

**R** ROSALIND

**S** SAMANTHA

**T** TESLA

**U** URSULA

**V** VINCI

**W** WERNER

**X** XAVIER

**Y** YOUNG

**Z** ZED

## ALPHANUMERIC SUBSETS

### EXAMPLES:

ALICE 01  
 BOB 01  
 CANDY 08  
 DONNIE 09  
 URSULA 02  
 VINCI 02

ETC...

AN UNLIMITED AMOUNT OF ENTANGLED QUANTUM SUBSETS CAN BE UTILIZED IN THIS MANNER. QUANTUM IMPORTANT FOR COMPUTING AND OTHER QUANTUM FUNCTIONS.

Figure 6: Mass Entanglement of Particles Alphabet Method

## 6. *Other Applications*

### Control Station/Multiple Radio Communication System

Below demonstrated in Figure 7 is an example of a Control Station with multiple radios types utilizing multiple streams of differentiating types of information/energy that is transmitted and received within the radio system. It utilizes the science located within figures 1-8 located throughout the document.

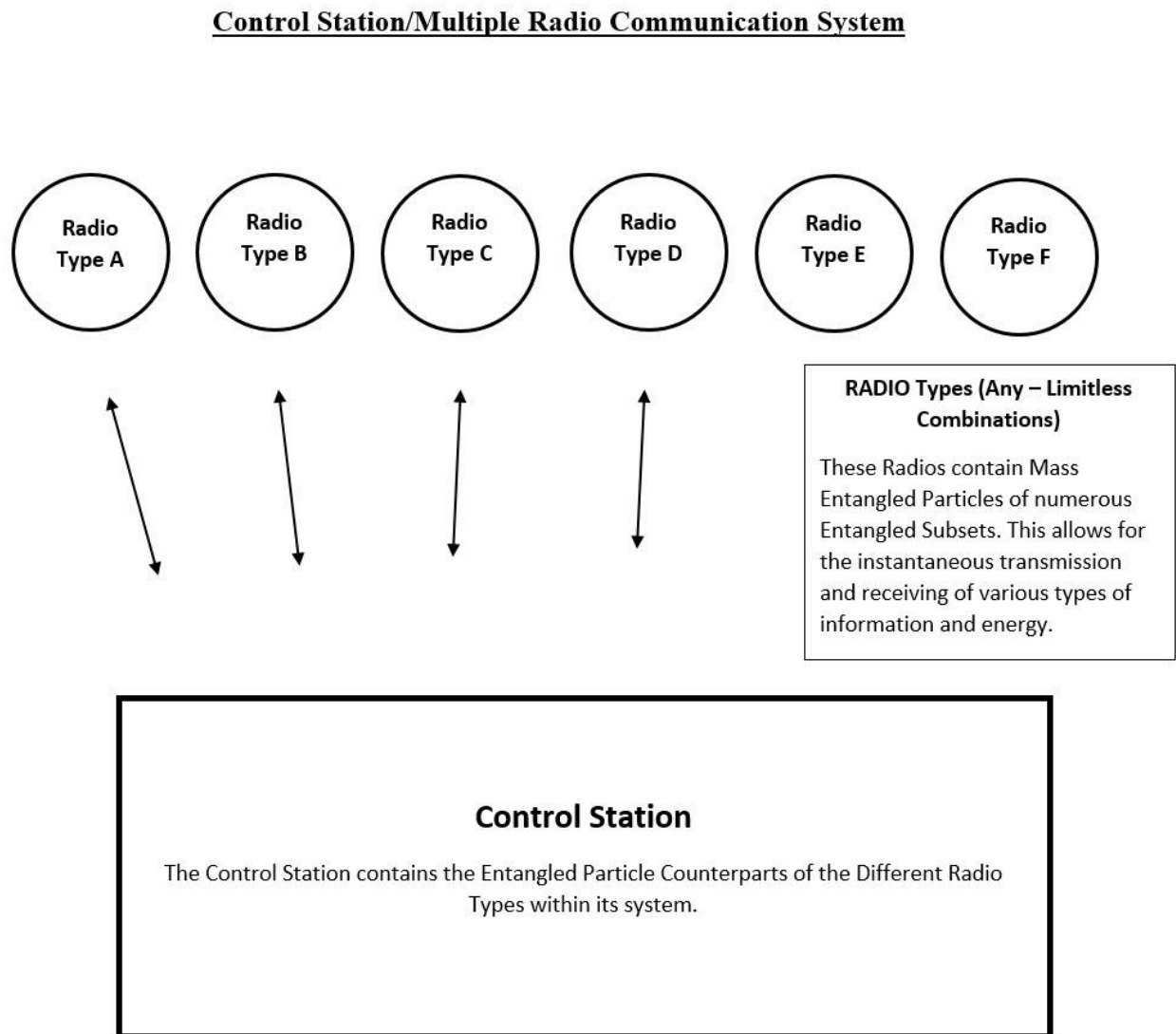


Figure 7: Quantum Radio Control Station



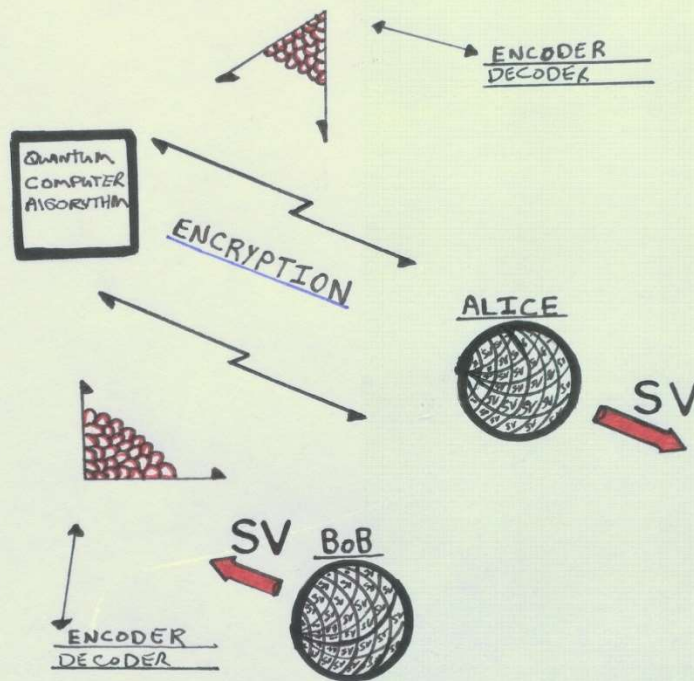
### Quantum Radio Maintenance - Entangled Particle fining/tuning etc.

Due to the nature of the particle entanglement process and the subsequent storage of each entangled particle counterpart within a radio or communication system, it is necessary to periodically realign or reset the entangled particles to ensure the smooth passage of information. This is accomplished through the manipulation of the Particle Spin Values and/or by particle stimulation to ensure the “shelf-life” of the particles remains extended and active within their respective system. This prevents/delays the necessity to constantly re-entangle particles to maintain a communication system. These processes allow for the passage of information within a Quantum System to become practical for use in every day devices, processes, and systems.

### Quantum Communication Cryptography by altering Spin Values (SV)

The Adjustment of Spin Values (SV), and Spin Value Wavelengths (SVW) coupled with Particle Entanglement Subsets (Figures 1-8) allow for the advent of Quantum Encryption. The encryption processes allow for the variation of information transmission and provide an additional level of security within the Quantum Information Communication Realm.

QUANTUM INFORMATION CRYPTOGRAPHY BY ALTERING  
THE SPIN VALUES (SV) OF ENTANGLED PARTICLES



QUANTUM INFORMATION IS ENCODED IN THE SAME MANNER DISCUSSED/DISPLAYED ON PAGES #14,15,16,AND 17. QUANTUM ENCRYPTION OF THE INFORMATION TO BE SENT IS TO BE CONDUCTED AS ANOTHER SECURITY FEATURE OF THE QUANTUM INFORMATION TRANSMISSION PROCESS. THIS WOULD BE CONDUCTED IN THE CASE OF QUANTUM PARTICLE DETECTORS AND IN THE CASE OF THE UNIVERSAL USAGE OF PARTICULAR SPIN VALUES (SV) FOR THE TRANSMISSION OF CERTAIN TYPES OF INFORMATION; THE "TUNING" OF COMMONLY USED SPIN VALUES (SV). A QUANTUM COMPUTER WOULD PRODUCE AN ALGORITHM TO RANDOMIZE THE SPIN VALUE (SV) OF THE PARTICLES PRIOR TO TRANSMISSION. THIS WOULD RENDER DETECTORS USELESS/INABLE TO DECODE INFORMATION. FOR EXAMPLE, IF SPIN VALUE WAVELENGTH (SVW) THAT IS UTILIZED FOR DISCRETE INFORMATION IS COMMONLY TRANSMITTED AT A CERTAIN VALUE, THE QUANTUM ALGORITHM AND ENCRYPTION/ENCODING DEVICE WOULD RANDOMIZE THE SPIN VALUE (SV) PRIOR TO TRANSMISSION.

Figure 8: Quantum Information Cryptography

# Form 3 – Petition for a Grant of a Patent

(Subsection 27 (2) of the Patent Act)

1. The applicant, Benjamin Allen Sullivan, whose complete address is 3603, 75 Queens Wharf Road, Toronto, Ontario, M5V 0J8, requests the grant of a patent for an invention, entitled:  
*Quantum Radio and Communication Processes*  
which are described and claimed in the accompanying specification.
3. (1) The Applicant is the sole inventor.
7. The Applicant believes that in accordance with *Patent Rules* they are entitled to pay fees at the small entity level in respect of this application and in respect of any patent issued on the basis of this application.

Signed 13 July 2016:

  
signature required

Attention: Commissioner of Patents

I Benjamin Allen Sullivan believe that in accordance with the Patent Rules, I am entitled to pay fees at the small entity level in respect of this application and in respect of any patent issued on the basis of this application:

*Quantum Radio and Communication Processes*

Signed 13 July 2016:

  
Benjamin Sullivan

416-618-0366

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